

CLAIMS

1. Three dimensional imagery composed of more than two angles of view to provide more than two visual references so that the eyes can scan and compare between more than two visibly distinct angles of view.
- 5 2. Three dimensional imagery according to claim 1 including an imagery display having a succession of images initiated at predetermined intervals, wherein said more than two angles of view are provided by a set of plural pairs of visually distinct angles of view of the imagery display able to be scanned by the left and right eyes respectively, and wherein said set of
10 pairs of visually distinct angles of view is provided during each of said intervals and therefore for each of said images.
3. Three dimensional imagery according to claim 2 wherein the number of said pairs of visibly distinct angles of view is an even number.
4. Three dimensional imagery according to claim 2 or 3 wherein said pairs of
15 visibly distinct angles of view are complementary about a common centre, parallel along a common horizontal axis.
5. Three dimensional imagery according to claim 2 or 3 wherein said pairs of angles of view have different common centres to provide a variety of different comparable focal points, or so as to contain vertical displacement
20 between angles of view.
6. Three dimensional imagery according to any preceding claim wherein said angles of view are provided simultaneously or sequentially but always so as to appear substantially simultaneous and at a frame refresh rate sufficient to substantially eliminate visible flicker.
- 25 7. Three dimensional imagery according to any preceding claim wherein said angles of view are provided in and to different viewing positions.

8. Three dimensional imagery according to any preceding claim wherein said angles of view are provided so that no two different views are displayed in or to the same viewing position during any sequence of display where persistence of vision could discern one view overlapping or superimposing on another view.

9. Three dimensional imagery according to any preceding claim wherein each of said angles of view does not exceed 15°.

10. Apparatus for viewing an imagery display, including:

means for retaining said imagery display as a succession of images initiated at predetermined intervals;

an optical grid means arranged with respect to said imagery display retaining means so that the imagery display may be viewed through the grid means;

means for applying a control signal or signals to said optical grid means for causing progressive movement of transmissive/reflective and opaque zones across the means whereby said progressively moving transmissive/reflective zones provide a set of plural pairs of visually distinct angles of view of the imagery display able to be scanned by the left and right eyes respectively; and

wherein the control signal is applied and the optical grid means is arranged so that said set of pairs of visually distinct angles of view is provided during each of said intervals and therefore for each of said images.

11. Apparatus according to claim 10 wherein said control signal or signals include a progressive, or sequential, image scanning function horizontally across the panel simultaneously with a progressive, or sequential, three dimensional image tunnelling function so that imagery can be seen only by both eyes simultaneously, or substantially simultaneously, at multiple or all discernibly separate and exclusive viewing positions over a contiguous arc

in front of the display retaining means that comprises the area where imagery can be distinguished clearly.

12. Apparatus according to claim 10 or 11 wherein said imagery display retaining means is a cinematograph, video and/or projection apparatus screen on which the images are retained, and the predetermined interval is then the respective refresh period thereof.
13. Apparatus according to any one of claims 10 to 12 wherein the number of said pairs of visibly distinct angles of view is an even number.
14. Apparatus according to any one of claims 10 to 13 wherein said pairs of visibly distinct angles of view are complementary about a common centre, parallel along a common horizontal axis.
15. Apparatus according to any one of claims 10 to 13 pairs of angles of view have different common centres to provide a variety of different comparable focal points, or so as to contain vertical displacement between angles of view.
16. Apparatus according to any one of claims 10 to 15 wherein said angles of view are provided simultaneously or sequentially but always so as to appear substantially simultaneously and at a frame refresh rate sufficient to substantially eliminate visible flicker.
17. Apparatus according to any one of claims 10 to 16 wherein said angles of view are provided in and to different viewing positions.
18. Apparatus according to any one of claims 10 to 17 wherein said angles of view are provided so that no two different views are displayed in or to the same viewing position during any sequence of display where persistence of vision could discern one view overlapping or superimposing on another view.

19. Apparatus according to any one of the preceding claims wherein each of said angles of view does not exceed 15°.
20. Apparatus according to any one of claims 10 to 19 wherein at least four visibly different said angles of view are displayed, two of the different angles of view having a common centre different to a common centre of the other two.
21. Apparatus according to any one of claims 10 to 20 wherein all of said angles of view displayed for the left eye are displayed exclusively and separately at positions for the left eye in any sequence of display where persistence of vision could discern a left view overlapping or superimposed on a right view, and not displayed completely, exclusively and separately to left eyes, and all views displayed for the right eye are displayed exclusively and separately at positions for the right eye in any sequence of display where persistence of vision could discern a right view overlapping or superimposed on a left view, and not displayed completely, exclusively and separately to right eyes.
22. Apparatus according to any one of claims 10 to 21 wherein said optical grid means includes an optical grid device formed on an electro-optical panel or display, wherein the grid device is arranged so that its configuration may be altered within each of the aforesaid intervals (eg. each separate frame display) so that the grid device takes up plural, and preferably multiple or all, discernibly different viewing positions of the imaging display.
23. Apparatus according to claim 22 wherein said optical grid device has multiple variable polarization elements controllable for altering the elements between opaque and transmissive condition, and wherein the elements have angles of polarisation that progressively vary across the device whereby the application to the device of a control signal or signals for effecting said alteration of the elements causes a progressive movement of transmissive/reflective and opaque zones across the device as the conditions of the elements are successively altered between opaque and

transmissive or reflective.

24. A method of viewing an imagery display comprising a succession of images initiated at predetermined intervals, the method including:

viewing the imagery display through optical grid means as transmissive/reflective and opaque zones are progressively moved across the optical grid means whereby said progressively moving transmissive/reflective zones provide a set of plural pairs of visually distinct angles of view of the imagery display able to be scanned by the left and right eyes respectively, wherein said set of pairs of visually distinct angles of view is provided during each of said intervals and therefore for each of said images.

25. An optical grid device formed on an electro-optical panel or display, wherein the grid device is arranged so that its configuration may be altered within each of a series of associated image displays (eg. each separate frame display) so that the grid device takes up plural, and preferably multiple or all, discernibly different viewing positions of the image display.

26. An optical grid device having multiple variable polarization elements controllable for altering the elements between opaque and transmissive conditions, wherein the elements have angles of polarisation that progressively vary across the device whereby the application to the device of a control signal or signals for effecting said alteration of the elements causes a progressive movement of transmissive/reflective and opaque zones across the device as the conditions of the elements are successively altered between opaque and transmissive or reflective.

27. A device according to claim 25 or 26 wherein said optical grid device includes a three dimensional imagery optical grid having parallel vertical strips of alternating opposite polarisation rotations through which two visibly distinct complementary angles of view are projected to form substantially aligned images on a screen composed of non polarisation diffusing

material.

28. A device according to any one of claims 25 to 27 wherein said optical device is an electro-optical panel including materials selected from polarising materials, liquid crystal materials and materials analogous in properties and functions to liquid crystal materials.
29. A medium in which are stored frames, representations, or machine readable code from which may be generated an imagery display including a succession of images initiated at predetermined intervals, the medium further storing machine readable code for generating control signal or signals for said optical grid means through which the imagery display may be viewed, which control signal or signals cause progressive movement of transmissive/reflective and opaque zones across the optical means whereby said progressively moving transmissive/reflective zones provide a set of plural pairs of visually distinct angles of view of the imagery display able to be scanned by the left and right eyes respectively, and wherein the control signal is applied and the optical grid means is arranged so that said set of pairs of visually distinct angles of view is provided during each of said intervals and therefore for each of said images.
30. A medium according to claim 29 wherein said control signal or signals are in synchronism with frames of said images that contain said visually distinct angles of view.
31. A method of transmitting a signal for broadcasting, recording, displaying, disseminating or downloading three dimensional imagery which includes transmitting a first component from which may be generated an imagery display including a succession of images initiated at predetermined intervals, and a second component for generating, in synchronism with said images, a control signal or signals for an optical grid means through which the imagery display may be viewed, which control signal or signals cause progressive movement of transmissive/reflective and opaque zones across the means whereby said progressively moving transmissive/reflective zones

provide a set of plural pairs of visually distinct angles of view of the imagery display able to be scanned by the left and right eyes respectively, and wherein the control signal is applied and the optical grid means is arranged so that said set of pairs of visually distinct angles of view is provided during each of said intervals and therefore for each of said images.

32. A method according to claim 31 wherein said control signal or signals are in synchronism with frames of said images that contain said visually distinct angles of view.

33. A method of displaying or disseminating three dimensional imagery which includes generating an imagery display including a succession of images initiated at predetermined intervals, and applying in synchronism with said images, a control signal or signals to an optical grid means through which the imagery display may be viewed, which control signal or signals cause progressive movement or transmissive/reflective and opaque zones across the means whereby said progressively moving transmissive/reflective zones provide a set of plural pairs of visually distinct angles of view of the imagery display able to be scanned by the left and right eyes respectively, and wherein the control signal is applied and the optical grid means is arranged so that said set of pairs of visually distinct angles of view is provided during each of said intervals and therefore for each of said images.

34. A method according to claim 32 wherein said control signal or signals in synchronism with frames of said images that contain said visually distinct angles of view.